

WHAT IS CLAIMED IS:

1. A method for storing dormant state information of mobile stations in a dormant state where no packet data is exchanged with an external
 5 packet network, in a centralized database connected to a packet data switch, and updating the dormant state information stored in the centralized database in association with the mobile station when the mobile station in the dormant state moves to a target BSC (Base Station Controller) adjacent to a source BSC in a wireless packet data system including a packet data switch node (PDSN) for
 10 connecting the external packet network to the mobile stations through the packet data switch and the source BSC connected to the packet data switch, the method comprising the steps of:

receiving from the mobile station at the target BSC a location registration message when the mobile station moves to the target BSC adjacent to the source
 15 BSC;

upon receipt of the location registration message, transmitting from the target BSC to the centralized database a location update message for updating a location of the mobile station;

upon receipt of the location update message, updating by the centralized
 20 database the dormant state information for the mobile station so as to connect the target BSC to the source BSC; and

transmitting from the centralized database to the target BSC a location update result message indicating complete update of the dormant state information.

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2. The method as claimed in claim 1, wherein the dormant state information includes an identifier of the mobile station, location information of the mobile station, a last registration time of the mobile station, and a source BSC ID of the mobile station.

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3. The method as claimed in claim 2, wherein the dormant state information includes identifiers for connections used to exchange packet data of the mobile station in the dormant state, a temporary identifier assigned to the mobile station, a service option and service configuration.

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4. The method as claimed in claim 1, wherein the location update message includes an identifier of the mobile station, and location information of the mobile station.

10 5. The method as claimed in claim 4, wherein the location information of the mobile station is an identifier of the target BSC.

6. A method for reconnecting an exchange of packet data between a mobile station and an external packet network by storing dormant state information of mobile stations in a dormant state where no packet data is exchanged with the external packet network, in a centralized database connected to a packet data switch, and updating the dormant state information stored in the centralized database in association with the mobile station when the mobile station in the dormant state moves to a target BSC adjacent to a source BSC in a wireless packet data system including a packet data switch node (PDSN) for connecting the external packet network to the mobile stations through the packet data switch and the source BSC connected to the packet data switch, the method comprising the steps of:

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receiving from the mobile station at the target BSC an origination message for requesting transmission of packet data; upon receipt of the origination message, transmitting from the target BSC to the centralized database a dormant state information request message for requesting dormant information;

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upon receipt of the dormant state information request message, searching by the centralized database dormant state information stored in association with the mobile station and transmitting the searched dormant state information using

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a search result message to the target BSC; and

upon receipt of the search result message, transmitting from the target BSC to the source BSC, a packet call connection message for requesting reconnection of the packet call and thus connecting the source BSC to the target
5 BSC through the packet data switch.

7. The method as claimed in claim 6, wherein the dormant state information includes an identifier of the mobile station, location information of the mobile station, a last registration time of the mobile station, and a source
10 BSC ID of the mobile station.

8. The method as claimed in claim 7, wherein the dormant state information includes identifiers for connections used to exchange packet data of the mobile station in the dormant state, a temporary identifier assigned to the
15 mobile station, a service option and service configuration.

9. The method as claimed in claim 6, wherein the dormant state information request message includes an identifier of the mobile station, and an identifier of the target BSC.
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10. The method as claimed in claim 6, wherein the search result message includes an identifier of the source BSC.

11. A method for reconnecting an exchange of packet data between a
25 mobile station and an external packet network by storing dormant state information of mobile stations in a dormant state where no packet data is exchanged with the external packet network, in a centralized database connected to a packet data switch, and updating the dormant state information stored in the centralized database in association with the mobile station when the mobile
30 station in the dormant state moves to a target BSC adjacent to a source BSC in a

wireless packet data system including a packet data switch node (PDSN) for connecting the external packet network to the mobile stations through the packet data switch and the source BSC connected to the packet data switch, the method comprising the steps of:

- 5 upon receipt of a termination call requesting termination of packet data from the external packet network, transmitting from the source BSC to the centralized database a query message for determining a location of the mobile station for the termination call;

- upon receipt of the query message, searching dormant state information
- 10 stored in association with the mobile station in the centralized database and transmitting the searched dormant state information to the source BSC using a location information message;

- upon receipt of the location information message, transmitting from the source BSC to the target BSC where the mobile station is located a paging
- 15 request message for requesting paging of the mobile station;

- upon receipt of the paging request message, paging by the target BSC the mobile station and transmitting a page response acknowledge message acknowledging the paging to the source BSC when the mobile station responds to the paging;

- 20 upon receipt of the paging response acknowledge message, transmitting from the source BSC to the target BSC a packet call connection message requesting connection of the packet data , and thus connecting the source BSC to the target BSC through the packet data switch.

- 25 12. The method as claimed in claim 11, wherein the dormant state information includes an identifier of the mobile station, location information of the mobile station, a last registration time of the mobile station, and a source BSC ID of the mobile station.

- 30 13. The method as claimed in claim 12, wherein the dormant state

information includes identifiers for connections used to exchange packet data of the mobile station in the dormant state, a temporary identifier assigned to the mobile station, a service option and service configuration.

- 5 14. The method as claimed in claim 11, wherein the query message includes an identifier of the mobile station for the termination call.

15. A method for storing dormant state information of mobile stations in a dormant state where no packet data is exchanged with an external
10 packet network, in a centralized database connected to a packet data switch, and updating the dormant state information stored in the centralized database in association with the mobile station when the mobile station in the dormant state moves to a target BSC adjacent to a source BSC in a wireless packet data system including a packet data switch node (PDSN) for connecting the external packet
15 network to the mobile stations through the packet data switch and the source BSC connected to the packet data switch, the method comprising the steps of:

transmitting to the target BSC a location registration message when the mobile station moves to the target BSC adjacent to the source BSC;

- upon receipt of the location registration message, transmitting from the
20 target BSC to the centralized database a location update message for updating a location of the mobile station;

upon receipt of the location update message, transmitting from the centralized database to the PDSN a location information update request message for requesting designation of the target BSC as a source BSC;

- 25 upon receipt of the location information update request message, designating by the PDSN the target BSC as a new source BSC and transmitting an acknowledge message to the centralized database; and

upon receipt of the acknowledge message, updating by the centralized database the dormant state information for the mobile station by the centralized
30 database and transmitting a location update result message indicating complete

update of the dormant state information to the target BSC.

16. The method as claimed in claim 15, wherein the dormant state information includes an identifier of the mobile station, location information of the mobile station, a last registration time of the mobile station, and a source BSC ID of the mobile station.

17. The method as claimed in claim 16, wherein the dormant state information includes identifiers for connections used to exchange packet data of the mobile station in the dormant state, a temporary identifier assigned to the mobile station, a service option and service configuration.

18. The method as claimed in claim 16, wherein the location update message includes an identifier of the mobile station, and location information of the mobile station.

19. The method as claimed in claim 18, wherein the location information of the mobile station is an identifier of the target BSC.

20. A method for reconnecting an exchange of packet data between a mobile station and an external packet network by storing dormant state information of mobile stations in a dormant state where no packet data is exchanged with the external packet network, in a centralized database connected to a packet data switch, and updating the dormant state information stored in the centralized database in association with the mobile station when the mobile station in the dormant state moves to a target BSC adjacent to a source BSC in a wireless packet data system including a packet data switch node (PDSN) for connecting the external packet network to the mobile stations through the packet data switch and the source BSC connected to the packet data switch, the method

comprising the steps of:

transmitting from the mobile station to the target BSC an origination message for requesting transmission of packet data;

upon receipt of the origination message, transmitting from the target
5 BSC to the centralized database a dormant information request message for requesting dormant information;

upon receipt of the dormant information request message, searching by the centralized database dormant state information stored in association with the mobile station , and transmitting the searched dormant state information to the
10 target BSC using a search result message; and

upon receipt of the search result message, connecting by the target BSC the mobile station to the PDSN through the packet data switch based on the dormant state information included in the search result message.

15 21. The method as claimed in claim 20, wherein the dormant state information includes an identifier of the mobile station, location information of the mobile station, a last registration time of the mobile station, and a source BSC ID of the mobile station.

20 22. The method as claimed in claim 21, wherein the dormant state information includes identifiers for connections used to exchange packet data of the mobile station in the dormant state, a temporary identifier assigned to the mobile station, a service option and service configuration.

25 23. The method as claimed in claim 20, wherein the dormant state information request message includes an identifier of the mobile station, and an identifier of the target BSC.

24. A method for reconnecting an exchange of packet data between a
30 mobile station and an external packet network by storing dormant state

information of mobile stations in a dormant state where no packet data is exchanged with the external packet network, in a centralized database connected to a packet data switch, and updating the dormant state information stored in the centralized database in association with the mobile station when the mobile station in the dormant state moves to a target BSC adjacent to a source BSC in a wireless packet data system including a packet data switch node (PDSN) for connecting the external packet network to the mobile stations through the packet data switch and the source BSC connected to the packet data switch, the method comprising the steps of:

10 upon receipt of a termination call requesting termination of packet data from the external packet network through the PDSN, transmitting from the target BSC to the centralized database, a query message for determining a location of the mobile station for the termination call; upon receipt of the query message, analyzing by the centralized database dormant state information stored in association with the mobile station and transmitting the analyzed dormant state information to the target BSC using a location information message;

15 upon receipt of the location information message, generating by the target BSC an internal paging request message by the target BSC and transmitting a page message for paging the mobile station based on the paging request message;

20 upon receipt of a paging response message from the mobile station in response to the page message, generating an internal paging response acknowledge message and transmitting to the centralized database a query message for requesting service information of the mobile station; upon receipt of the query message, transmitting from the centralized database to the target BSC the service information stored in association with the mobile station using a given message; and upon receipt of the service information, transmitting from the target BSC to the PDSN a packet call connection message for requesting connection of the packet data and thus connecting the PDSN to the target BSC through the packet data switch.

25. The method as claimed in claim 24, wherein the dormant state information includes an identifier of the mobile station, location information of the mobile station, a last registration time of the mobile station, and a source
5 BSC ID of the mobile station.

26. The method as claimed in claim 25, wherein the dormant state information includes identifiers for connections used to exchange packet data of the mobile station in the dormant state, a temporary identifier assigned to the
10 mobile station, a service option and service configuration.

27. The method as claimed in claim 24, wherein the query message includes an identifier of the mobile station for the termination call.